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# **ODL Restrictions, ECS Specific and ODL Library Specific**

**Technical Data**

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# ODL Restrictions, ECS Specific and ODL Library Specific

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## 1. Introduction

This Technical Note specifies the known restrictions to the PDS ODL Standard 3.2 (<http://pds.jpl.nasa.gov/stdref/stdref.htm> Chapter 12) imposed by the ECS implementation of those standards. These restrictions arise from both the specific share-ware parser implementation restrictions (ECS has integrated the parser available through the above link), as well as restrictions imposed by the ECS implementation itself.

As such, this note should be viewed as an addendum to the PDS standard for all ECS data providers and users of ECS public APIs

## 2. ECS Specific ODL Differences

1. Datetime formats in non-standard syntax. Fix--change all Datetime values to either --

YYYY-MM-DDThh:mm:ss.ttttttZ

or

YYYY-DOYThh:mm:ss.ttttttZ

where the fractional seconds (t) and Time System sign (Z or other) are optional.

2. Double quotes around all string values (except in case of Datetime). Examples --

"L71EDCFE1.OUT" (filename)

"ETM+" (sensor name)

"Y" (flag/code)

"-" (flag/code)

"+" (flag/code)

"N/A" (null)

3. Illegal characters in attribute names. Fix--simply drop them from the name. Examples --

Change:

MY\_ATTRIBUTE+/&^9 = "ETM+"

to

MY\_ATTRIBUTE9 = "ETM+"

Examples are any of the ODL specified special characters or other characters --

special\_character ::= - { | } | ( | ) | + | - | . | " | ' | = |  
\_ | , | / | \* | : | # | & | ^ | < | >

other\_character ::= ! | \$ | % | ; | ? | @ | [ | ] | ` | ~ |

vertical bar | other control characters

4. Unnecessary semicolons at end of statements. Fix--simply drop them. Example --

Change:

MY\_ATTRIBUTE1 = 99;

to

MY\_ATTRIBUTE1 = 99

Note that any similar PVL-isms should be checked for generally.

5. Improper GROUP statements. Fix--change them to GROUP/END\_GROUP. Example --

Change:

BEGIN\_GROUP = METADATA\_SCENE62

to

GROUP = METADATA\_SCENE62

The example shows a PVL BEGIN\_GROUP statement. ODL libraries may support this but ECS requires ODL GROUP labels.

6. Remove floating numerics from GROUP labels or place at the end of the label if numeric is an ordinal. Example --

Change

GROUP = WRS\_SCENE\_01\_METADATA

to

GROUP = WRS\_SCENE\_METADATA\_01

and similarly for the case of Scene 02, 03, 04, etc.

Instead, change to

GROUP = WRS\_SCENE\_01

and similarly for the case of Scene 02, 03, 04, etc.

Make corresponding changes to matching END\_GROUP label.

7. ECS does not like the use of OBJECT statements except in a very limited form (i.e., with nest of one NUM\_VAL and one to many VALUE = NNNN statements of the same type). L7 metadata frequently used OBJECT statements in the same way as GROUP statements, which ECS parser could not accept. Fix--change all OBJECT statements to GROUP statements. Example --

Change:

```
OBJECT = METADATA_FORMAT_X
```

```
    WRS = 098
```

```
    ATTRIBUTEZ = 9888
```

```
    ATTRIBUTEZ1 = "MY_NAME"
```

```
END_OBJECT = METADATA_FORMAT_X
```

to

```
GROUP = METADATA_FORMAT_X
```

```
    WRS = 098
```

```
    ATTRIBUTEZ = 9888
```

```
    ATTRIBUTEZ1 = "MY_NAME"
```

```
END_GROUP = METADATA_FORMAT_X
```

8. Ensure all ODL files have an END statement. These are frequently omitted. Fix--add a final END statement to bottom of file.

9. Ensure Comments are completed on the same line. Multiple line comments should have a set of delimiters on each line.

Change:

```
/* This is a comment line
```

```
And this is the following comment line */
```

to

```
/* This is a comment line */
```

```
/* And this is the following comment line */
```

10. Ensure TBDs or Data not set are to be completed with values of the same type as the attribute expects. ECS type checkers will reject values where, for example, strings are encountered where integers are expected.

Change:

```
STATION_SCENE_ID = "NOT_SET"
```

to

STATION\_SCENE\_ID = 0

Change the attribute value

BROWSE\_FILE\_NAME = {TBD}

to

BROWSE\_FILE\_NAME = "{TBD}"

Statements like

BROWSE\_FILE\_NAME = ""

are to be avoided.

BROWSE\_FILE\_NAME = "NNNNNN" is better.

### **3. Differences Between Published Standard and ODL Library Built into ECS**

In the course of development we have noticed that the published ODL library does not support the following syntax:

1. Attribute identifier names containing loner-numerals in the middle. Fix--attach the numerals to leading alphabets. Example --

Change:

MY\_ATTRIBUTEIDENTIFIER\_6\_FILTER

to

MY\_ATTRIBUTEIDENTIFIER6\_FILTER

Alternative fix - move digit to end of line with proceeding underscore character.

Example --

Change:

MY\_ATTRIBUTEIDENTIFIER\_6\_FILTER

to

MY\_ATTRIBUTEIDENTIFIER\_FILTER\_6

Section 12.3.5 suggests:

identifier ::= letter [letter | digit | \_letter | \_digit]

Section 12.4.2 suggests:

assignment\_statement ::= attribute\_identifier = value

2. Values written with leading zeros are readable by the ODL libraries but their leading zeros are lost if the value type chosen as integer.

Fix - Values (i.e., 001, 010, 100, 243, etc.) where the preservation of the leading zeros is important should be written as strings.

Section 12.3.1.1 suggests Integer numbers in decimal notation are defined:

`integer :: = [sign] unsigned_integer`

`unsigned_integer :: [digit] +`

`sign ::= + | -`

and

`digit :: = 0 | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9`

Zeros are allowed in all number bases.

3. ECS has modified the ODL library to accept `attribute_identifier`, or value lengths up to 100 characters. The default setting was 32 characters. This has been done to accepted longer values, for example, long filenames.